approach

AUGUST 1976 THE NAVAL AVIATION SAFETY REVIEW

"Rig the MOVLAS, starboard side!"

By LCDR Dan Whalen
CVW-1 LSO

Although not a MOVLAS unit, the location of this mirror will give you an idea what it's like flying a starboard ball.

AT sea, night, 22 November 1975.

2130A. Moderate wind and seas; a waning moon illuminates a mid-layer of broken clouds above the carrier. While running downwind, the on-deck carrier lighting remains bright as the pull forward and respot following the last launch of the night are methodically completed. Some aircraft are in their final spot of the night on the flight deck. On the hangar deck, the air wing night check crews are in the full swing of nighttime maintenance activities.

2145A. On an 03 weather deck aft of EL 4, a small group of officers grows in number from two to three, then six. A blue shirt "talker" familiar to all arrives. The group moves out onto the safety net and climbs up to the LSO platform. With few words the lower console cover is raised, windshield covering the PLAT set up, PLAT turned on, and intensities adjusted on the lens control. The upper console door is opened, selector barrels set to FINAL A, and radio checks accomplished with approach on both channels.

The V-2 talker arrives and performs his on-line checks. V-1 talker acknowledges a "lens is on" call from Primary. As he adjusts the lens intensity under the watchful eye of one of the team LSOs, the CAG LSO visually checks the lens, datum, cut and waveoff lights. Both pickles work, both radios, and both handsets work. Other checks are completed. Aldis Lamp's okay. VERY Pistol's here.

2158A. The CAG LSO checks the heel and the wind indicator. Looks good; about 15 degrees of turn to go. "Stand by for the evening prayer . . ." November 22, 1975. The chaplain reads the memorial prayer he wrote in 1963 for the late President John F. Kennedy. "Amen." Gee, doesn't seem like 12 years ago.

The remote speaker crackles with a "Ten miles dirty

up." The lights have dimmed to recovery intensities. Wind check. Looks good; right down the angle 25-27 knots. Nice clear night; there's No. 1. Another lens check. Deck lighting 4.0. "Approaching glidepath, begin descent." Final bearing now 319. Wind looks good. "On glide slope, slightly left of course and correcting nicely." "One and a half miles, right two." "What the hell is that for? Huh? Never felt the divisional or elevator doors close out here on the platform! That dentist must be driving; the wind's gone 20 degrees port and falling off. Damn, that's the collision alarm." "Fire! Fire! in the port catwalk." "Three-fourths of a mile on glide slope, drifting well left of course. Call the ball." 701 *Prowler* ball. "Roger ball, wave off."

"$%&*! That's my lens on fire. You visitors clear the platform. That fire's moving this way. That's a fuel fire; look at the smoke. Let's secure the platform and help out. Look under the elevator; there's a ship down there. My God! *Collision at sea!* One of ours – No. 26. How will they survive that holocaust!"

Well, the aircraft (the scheduled recovery was bingoed), the carrier, and the CG survived through the teamwork and valiant efforts of their crews – all well reported and documented elsewhere.

A preliminary survey of the Lens and Station No. 2 – two hours after the collision indicated they hadn't survived. Not at all. A glance in the PLAT and lens room the following day showed another disaster area. The whole works headed for Davey Jones' locker. What did that mean? "Rig the MOVLAS on station No. 3. Right, the starboard side . . . near the foul line . . . yeah, right abeam the handler's window. You're *&%$* me!"

"No, we launch at 0800 Monday. Well, Paddles?" "Yes sir, we'll rebrief them on CVIC for each launch."

That "yes sir" was not just a "cheerie aye, aye." Seven years ago, a hardheaded Wing LSO had introduced me to MOVLAS, albeit on station No. 1. Fortunately, training with that rusty crank handle has been continuing since. "You Get No Bread With One Meatball!" (APPROACH, JUN 1970), written by a fellow LSO, didn't get rave reviews. However, that article is as valid today as it was 6 years ago.

While the urgency of completing a recovery didn't exist on KENNEDY as it did on ROOSEVELT in 1970, the professional competence of an LSO/air wing will still be tested with MOVLAS. You will not "just rise to the occasion" if *you* haven't used it in a training situation. From ship to ship, CO to CO, CAG to CAG, many reasons are preferred for not using the MOVLAS – from simple indifference to severe dislike, nay hatred. ("Damn LSO put me on the ramp with MOVLAS.")

While we never want to have an incident which requires the use of MOVLAS, it remains the LSO's responsibility to ensure our air wing/ship's readiness to rig and use the MOVLAS. The impetus resides with both the CVW and squadron LSOs to provide this training.

What about RAG training? Well, no indictments will be made. However, the number of first tour (first or second cruise) aviators who even knew what MOVLAS stood for – let alone had ever flown MOVLAS on the beach prior to seeing it on the ship – would statistically rattle Grampaw Pettibone.

LSOs, perhaps a review of your FCLP/CQ phase might indicate a revision. The ABCM at your outlying field may not love you after you have him pull the MOVLAS out of the shed, check the bulbs, control rheostats, trailer, and clean the bird nests out of the light box. But that day hence when a young aviator rolls in the groove to a presentation that looks a little different, he'll remember you. Perhaps in professional terms.

The third or fourth time you roll out the MOVLAS, don't just stick it on the left side again. Put it on the right side of the runway. Now have them use the same carrier box for lineup. You'll be coming within a gnat's article of simulating for him what the scan pattern is at the ship. He'll learn how easy it is to go "a little left to right all the way" or left to right at the ramp.

Not only will you provide needed training for your aviators (could you need it?), but some new skill will accrue to your professional portfolio.

Read next month's article on using the MOVLAS. Discuss it with your CO, CAG, and ship's captain. And if at first you don't succeed . . . talk to the more senior aviators. They can provide you with sound instructional guidance and sea stories of "when the mirror was on the right side of the landing area."

Then some dark or moonlit night, when of necessity the LSO says, "Roger ball, MOVLAS recovery, starboard side," your aviator can respond, "Roger that," rather than present you with a deadly silence (or approach?).

Commanding Officer, USS JOHN F. KENNEDY (CV 67), Comments:

The philosophy and thrust of LCDR Whalen's article are of utmost interest to all concerned with carrier operations. Within one day of the collision that so drastically reduced Visual Landing Aids capability, USS JOHN F. KENNEDY was safely operating the full air wing. Within 2 days, both day and night normal size recoveries were being conducted without incident on the starboard MOVLAS. This accomplishment was a credit to the persistent and professional attitude toward frequent MOVLAS training displayed by the CVW-1 pilots and LSO Team. Their path to success is highly recommended to all ship/air wing teams. ◄

RUNWAY FOAMING

...an extinct species

THE jury is in and the verdict handed down. Runway foaming for intentional wheels-up landings will be curtailed by the U.S. Navy following depletion of currently assigned equipment and protein stocks. The Naval Safety Center "Report on the Utilization of Foam for Intentional Wheels-Up Landings," which was submitted to the Chief of Naval Operations, explains the reason why.

When the concept of runway foaming was being developed, three theoretical benefits were advanced by its advocates. These same benefits continued to be offered in support of runway foaming, but as discussed below, the arguments are no longer supportable.

By CDR R. C. Gibson
Facilities Analyst
Naval Safety Center

• The first argument, that foaming reduces the extent of damage to an airplane by cushioning the contact between airframe and runway, may be disproven by considering the makeup of foam. It consists of 90 percent air, 10 percent water, and a stabilizing compound. Impact damage is therefore almost entirely a function of pilot technique and airplane landing weight, configuration, design, and velocity.

Continued

• The second supposed benefit of foaming is that it reduces the coefficient of friction between the airframe and runway which in turn decreases deceleration forces imposed on the airplane, decreases the airplane's tendency to swerve when landing in asymmetrical configurations, and decreases slide damage incurred during landing. The Naval Research Laboratory Report 5492 of 22 July 1960 refutes this theory, concluding that "... no more than a 5-percent reduction in the coefficient of friction between the runway and metal aircraft structure is introduced by the presence of foam." Therefore, no significant change should be noted in length of runout, slide damage, deceleration forces, or braking action.

• The final argument for foaming is the only one supported by fact. Foaming reduces the friction spark hazard, a possible ignition source following impact-imposed damage to fuel tanks or systems. The Naval Research Laboratory concluded that a properly foamed runway does materially reduce the friction spark hazard during an emergency landing. Ignition-suppression effectiveness on metals, based on a 2-inch depth of foam, was found to vary from 57 percent for 347 Stainless Steel to 100 percent for 420 Stainless Steel. Aluminum alloys produced no friction sparks capable of igniting aircraft fuels on either dry or foamed runways. On the other hand, foam was completely ineffective in the suppression of titanium sparks.

It would seem that spark reduction by itself would provide ample justification for the practice of runway foaming. This is not the case, however. While friction sparks may serve as an ignition source, fuel vapors must be present to sustain a fire. The Naval Research Laboratory recognized this fact when it conducted its study and stated that "When the fuel load of an aircraft has been reduced and/or the expected severity of landing impact is not sufficient to disrupt fuel tanks, the use of foam-covered runways is not recommended except for the purpose of clearly marking the target landing area." In essence, the report states that ignition sources need not be considered if there is no fuel to burn.

The discussion of runway foaming now reduces to the probability of rupturing a full or practically full fuel cell during landing. Lacking adequate research data, a computer study of the Navy's experience in this area was initiated. The desired data was unavailable from the computer in the exact form required, but was extractable by examining the frequency of fires resulting from intentional wheels-up landings. All such mishaps for the period 1 July 1967 through 31 December 1975 were reviewed. Unintentional wheels-up landings were excluded because, in most cases, neither aircrew landing procedures nor airplane fuel states were optimized for an emergency landing.

The computer study revealed that 264 intentional

SUMMARY OF INTENTIONAL WHEELS-UP LANDINGS BY FISCAL YEAR

Fiscal Year	Total	Total Foam	Departed Foam Pattern	Total No Foam	Total Fires
76 †	6	3	0	3	0
75	19	15	2	4	0
74	23	15	2	8	0
73	17	12	2	5	0
72	25	14	1	11	0
71	29	23	5	6	0
70	60	35	3	25	1 *
69	53	29	6	24	0
68	32	15	3	17	2 **
Totals	264	161	24	103	3

Table 1

† Through 31 December 1975.

* Small hydraulic fire in nose wheelwell, A-6A/no foam used.

** One small electrical fire in ECM antenna dome, SP-2H/no foam used; 1 small residual engine fire, T-1A/foam used but aircraft departed foam pattern.

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wheels-up landings were experienced during the 1967-75 period. Of these, 161 airplanes landed on a foamed surface with the remaining 103 using an unfoamed runway. Twenty-four of the airplanes attempting emergency landings on foamed runways either landed short of or departed the foam pattern during runout. One fire occurred during a landing on a foamed runway, a residual engine fire in a T-1A landing with the starboard main landing gear up. Two fires occurred during the 103 landings on unfoamed runways. One was a small hydraulic fire in the nose wheelwell of an A-6 that landed nose wheel up, and the other was an equally small electrical fire in the ECM antenna dome of an SP-2H that landed all gear up. For a complete statistical summary, refer to Table 1.

Several facts are evident after analysis of the computer data:

- The incidence of fires during intentional wheels-up landings was extremely low: 0.6 percent for foamed, and 1.9 percent for unfoamed runways.
- The fires experienced were minor in nature, easily extinguished by crash crews, and interestingly, did not involve airplane fuels.
- When an intentional wheels-up landing was accomplished on a foamed or unfoamed surface, ample time was available for the pilot to reduce airplane fuel load and comply with landing techniques recommended by NATOPS.

Therefore, the study concluded that:

- Intentional wheels-up landings can be accomplished essentially as safely on unfoamed runways as they can on foamed runways.
- There is no evidence to support a variation in damage between unfoamed and foamed runways.

The Chief of Naval Operations, acting on the above information and on the comments/recommendations solicited from type commanders, released a message on 10 May 1976 concluding that runway foaming was neither justified nor cost effective. The Naval Air Systems Command then issued detailed guidance on the phaseout of runway foaming equipment and recommended the removal of foaming instructions from pilots' NATOPS manuals.

Thus, the final chapter has been written on runway foaming; the facts simply do not justify it. ◄

THE LEGEND OF

The apteryx, also known as the kiwi, is a wingless and tailless bird. During a recent archaeological expedition to lower Slobovia, an old manuscript was uncovered which gives evidence that the apteryx may have once had wings and a tail. The following is a VERY rough translation of that manuscript:

THE APTERYX

By LCDR Russ Harrison
VAQ-130 ASO

The apteryx was a strong bird. Not as big as his friends, the eagle and the condor, perhaps, but still quite sturdy and possessing a very reliable structure. He was fast. Not quite as fast as the eagle and the falcon, but he got where he was going in good time. As far as looks went, he had a big, somewhat ugly nose, but that was countered by his friendliness and willingness to help others.

One of the favorite pastimes of the apteryx was to fly with the eagles. It was great to soar through the sky and let his friends, the eagles, make mock attacks on him. Sometimes he would hassle with the eagles and even beat them at their own game. But usually he let them have a slight margin of victory, as the eagles were his good friends and occasionally needed an ego boost.

Now, one day the great "bird god" in the sky watched the eagle and the apteryx flying together. He had long contemplated making a Super-Defender for all his birds – to protect them from the evil hunters on the ground. Both of these birds would make good Super-Defenders, but the eagle was already very busy fighting with "Foxbats" and posing for national emblems. So the great "bird god" in the sky chose the apteryx to be his Super-Defender. He was given some very powerful and very expensive equipment to help him protect all the birds from the evil arrows of the hunters on the ground. The apteryx worked very hard with his new equipment and soon became quite proficient at his assigned tasks. The great "bird god" in the sky was pleased.

And it came to pass that the hunting season was over for a while, and there was little for the apteryx to accomplish. He became bored with his leisure role. In his search for relief from his boredom, he developed a comradeship with the owls, and they would sit in a tree at night and hoot. Of course the apteryx was not used to all this hooting, and his throat became dry and sore. But the owls had plenty of a special lubricant, and that problem was soon solved. So, the owls and the apteryx would hoot and hoot into the small hours of the night.

The next day, when the apteryx went to fly with the eagles, he felt somewhat less than his normal efficient self. But he could still handle the situation. After all, he had been flying so long that everything was routine anyway. So, this is the way the apteryx spent his time – hooting with the owls and flying with the eagles.

Then, one day after a particularly long night of hooting with the owls, he made a small mistake. The apteryx was flying along, rubbing his throat and wishing that he had not hooted quite as loudly with the owls the night before, when he suddenly saw the eagle directly ahead of him. The apteryx vainly tried to collect his wits and turn away, but it was too late. His left wing hit the eagle in the butt and tore out his tailfeathers. Everyone knows that eagles don't fly very well without tailfeathers, and this one was no exception. He fell to the ground like a lead balloon. The apteryx had to drop all his expensive protective equipment and was just barely able to limp back to his own tree.

Now, the great "bird god" in the sky was furious over the loss of the expensive equipment and one of his beloved eagles. He called the apteryx before the long green table in his throne room and sorely chastised him. He decided to make an example of the apteryx for all the other birds to see. His skilled flight surgeons amputated his wings, while others chewed off his tail. His feet were painted black, and he was banished from the kingdom of the sky forever.

The moral of this story is that if you "Hoot with the Owls" and "Fly with the Eagles," you may lose your tail or wings and become a blackshoe like the apteryx.

THE PEANUT APPROACH

By LT Cameron B. Place
VAW-123

THIS name has been given to what might be described at its best as a random radar approach, and at its worst as a radar controlled yankee pattern. It's a game played almost exclusively by those residents of the upper reaches of the marshal stack – E-2s and S-3s – multipiloted, double-cycle aircraft.

In its fiercest form, it's played on dark, rainy nights with high winds and heavy seas, and its causes are usually those very conditions. The name comes from the radar pattern left on the scope by the participants, a sort of lazy eight or huge infinity sign 20 miles out on BRC (base recovery course). If that's where the playing field is located, the problems generated are present but relatively minor. When the game is played close (inside 10 miles) to the goal (flight deck), the problems become very serious, the game takes on an aura of a duel, and the peanut usually takes on the appearance of a plate of spaghetti.

The peanut approach would be a myth if all aircraft departed marshal exactly on time, flew exactly on airspeed, approached exactly on the radial, and nestled exactly into a 3-wire with no hook skips, no blown tires, and no malfunctions of any kind to delay clearing the area. Air Ops officers dream at night about such perfect recoveries.

Unfortunately, the nordos and bolters and waveoffs and

Until the Navy figures out a sure-fire, guaranteed method for a 100 percent boarding rate, day and night, rain and shine, the peanut approach will be around.

foul decks soon plug the preplanned gaps of a Case III approach. Priority traffic cuts the tail-end-charlies out and the game begins. Let me say right now, this isn't a cry of self pity from one of the charlies. The game belongs to us – the multipiloted aircraft. While the game is serious to the two-man teams, it is a deadly quest for survival when a single-piloted aircraft gets involved. The peanut approach should remain unique to the multipiloted fixed wing community.

There are two factors that make the game so exhilarating to the players. The obvious one is vertigo. No matter how often you play, you should anticipate vertigo. It can range from a slight case of leans to complete and total disorientation. You'll swear that an extra ton of fuel has settled in one wing, the plane won't trim, and the gyro has tumbled. The whole aircraft seems as if it's falling apart and flying sideways.

The second factor is the possibility of a midair. It's always a possibility, to be sure, but the probability

increases as your approach becomes nonstandard, and a collision literally lurks over your shoulder as the peanut approach occurs nearer the ship.

Let's discuss both factors in some detail. Vertigo ought to be expected – some sort of disorientation will occur as you depart from the normal approach pattern. To a large extent, you can control whether or not you get vertigo or how severe a case it is. Don't move your head around. Don't transition repeatedly inside and outside the cockpit. Do make your turns smoothly and smartly. A gentle, slow roll in and roll out will leave you with the leans. Let your ears know what you're doing by differentiating between stable flight and a turn transition. If you do get vertigo, man thoses gages and scan, *scan,* SCAN!

One other thing to do: work your copilot. He sets up and uses the radios. He lowers the hook. He scans outside. He monitors the gages. He backs up your flying and warns you of any deviation on your part from assigned heading and altitude. He has a lot of work to do, but he has one more responsibility – that of being ready at any time to take control if you become totally disorientated. *Make sure your copilot knows what his responsibilities are and what you expect of him.*

If you're a normal tail-end-charlie, you've probably got two or three crewmen in the back end. They're crewmembers, and if you use them as we do, they are monitoring marshal and final approach frequencies. They're backing up the pilot on heading and altitude, and they're keeping the front end informed on the recovery howgozit. A little early warning on the bolter/waveoff status gives the front end just that much more time to be ready when the game begins.

The other factor, potential midairs and the prevention thereof, while basically a responsibility of the aircrew, is nevertheless shared with CATCC. To be sure, everyone in the aircraft should maintain a lookout doctrine. Many an aircraft has first been spotted through the little porthole in the side of the fuselage, but during IMC the main responsibility rests with the CATCC controllers. The problem becomes serious as the game takes place near the ship, in less and less airspace with more and more aircraft.

I make no rash statement that peanut approaches can be prevented. They are a reality like death, taxes, and garbage. There are, however, two distinct levels of intensity at which the game is played. The peanut that forms at 20 miles out and turns into a nice straight approach is a low-key game, barely worthy of comment. It takes place far beyond the bolter/waveoff pattern, is relatively simple in scope, presents the pilot with limited opportunity to suffer the ravages of severe vertigo, allows plenty of time to straighten out the leans, and lets the pilot make a normal transition to the landing configuration. No sweat. The pilot will win this round every time.

The game that is declared inside 10 miles is close to the

bolter/waveoff pattern and overhead tanker pattern. Because of the numerous aircraft in the vicinity, it usually consists of many turns, climbs, descents, and airspeed changes – all seemingly issued in a random manner. Mix this with instructions to clean up, and minimal warning to dirty up for a hard turn into short final from off altitude, and there's no time to shake the leans and get comfortable with the aircraft. Toss in a little rain, turbulence, low ceilings, and you've got the equivalent of the seventh game of a World Series.

Until the Navy figures out a sure-fire, guaranteed method for a 100 percent boarding rate, day and night, rain and shine, the peanut approach (or whatever it's called on your ship) will be around. As a pilot, do all that you can to ward off vertigo and the leans, but you should expect to be struck and be prepared to deal with it. Always be aware of where you are relative to the ship. Ask for and get all the help you can from your crew. If you become involved with the spaghetti situation, talk to the CATCC people after the recovery. You should recognize their problems, but ensure they fully understand what they did to you.

For you CATCC people, obviously the best solution to a good approach is the 20-mile peanut. The in-close evolution should be avoided by all means. When it cannot be helped, you've got to go to max alert. Recognize the possible midairs early and take effective action then. Keep instructions to a minimum. Make the final straight-in long enough to let the pilot get set up. Remember, once you start one of these games, you are making the rules. Keep pilots informed of your intentions and desires. Don't forget any altitude or airspeed changes you've given, and advise pilots about fuel dump and clean or dirty status.

One last note: The game isn't really voluntary. When you get chosen to play, it's impossible to say no. The peanut approach isn't the safest evolution in the world, but it's a heck of a lot better than running into someone. ◄

On Borrowed Time

TWO lucky pilots and three lucky crewmen of an SH-3A either did not preflight their helicopter one night aboard ship or conducted such a cursory preflight that their lives hung in the balance.

They flew a combination night quals and ASW flight of 3.5 hours. After landing back aboard ship, someone found the gust lock was still attached to the tail rotor.

The NFO's Responsibility in Tactical Aircraft

By Capt Alan P. Sullivan, USMC
VMAT(AW)-202 ASO

While trying to get a visual check of the landing gear, an A-6 orbits homefield until flaming out. The gear had indicated unsafe UP, but all gear indicated safe DOWN. An F-4 pilot descends through decision height and puts the struts through the wings. An A-6 is catapulted with its parking brake on and is lost at sea. What do these occurrences share in common? They all could have been avoided if the NFO had not simply been "along for the ride."

The presence of an NFO in any tactical aircraft represents a cost far greater than his salary and training expenses. It costs the aircraft designer weight, volume, fuel, and visibility. This expense must be justified not only in the particular tactical regime where the NFO's skills are required, but also in the ordinary flying that is required between tactical exercises.

Some NFOs have a mental problem assuming responsibility for "the other seat." I have heard all too often: "The pilot is responsible for the aircraft, and I am too busy with my tasks to worry about his job." Unfortunately, this remark indicates a kind of person who does not have the big picture. If he errs, it is doubtful (in a peacetime environment) that either he or the pilot will be hurt. If the pilot errs, they both may be killed.

What is the NFO's responsibility? *It is to back up the pilot from engine start to postflight.* How is this done? There are three elements involved. First, the NFO must know the airframe and engines and emergency procedures as well as any pilot would, regardless of what the pilot knows about the black boxes. Remember, NFOs, it's your ride home, too.

Then the NFO must possess the ability to set priorities. You don't stick your head in the radar boot at rotation on an instrument roundrobin flight. You do hawk the gages, listen up on the radios, and monitor the navigation. Once cleaned up and well established on course, your priority can shift to the systems, but the NFO must regularly monitor what the aircraft is doing throughout the remainder of the flight. Items of interest include fuel transfer, performance parameters, and present position. When it is time to commence the approach, the NFO must reorganize his duties in order to more closely monitor aircraft performance. If self-contained radar approaches are to be conducted, the NFO must guard against becoming preoccupied with his equipment during a critical phase of flight.

The final element is really twofold: attentiveness and presence of mind. It is admittedly difficult to remain interested during a 250-mile leg on an airway. But should an emergency arise requiring an immediate landing, the NFO should be able to select an airfield and provide a heading while assisting the pilot in any other way he can. It does not take many occurrences of an NFO being inept when he is most needed before a pilot will, in sheer self-defense, begin to expect incompetency from all NFOs and act accordingly. This is not conducive to a safe or desirable working environment.

What's in it for NFOs? Several things:

- You are more likely to arrive at your destination in the same conveyance that you started in.
- You may enjoy your flying even more than you do now.
- The pilot may be more willing to act upon your suggestions if he trusts you as a knowledgeable flight officer instead of only a systems operator.
- You will know the airplane better than you do now.
- You will feel more in control of the situation by being ahead of the aircraft.

Pilots can help develop these qualities in an NFO without relinquishing their command prerogative. (Pretty tough to do with only one stick to share, anyhow.) Demand that an NFO follow or read checklists, monitor takeoffs, departures, enroute navigation, and landing parameters. It can only pay dividends in the long run. One command has required that NFOs be administered instrument check flights annually. You, in effect, get a copilot for free, which is no bad thing.

NFOs – read the first paragraph again. Would you have broken the chain that led to these accidents? ◄

TEAMWORK

TEAMWORK is a vital element in naval aviation, but often the word becomes a *cliche* because it is used so often in safety commendations. A recent mishap at MCAS Yuma, however, demonstrated the real meaning of teamwork, and two safe crewmembers plus a saved F-4 are the result.

The *Phantom,* piloted by Capt Robert Hutchinson with Capt Joseph Day, the RIO, took off from MCAS Yuma and experienced a total utility hydraulic failure. The crew notified Yuma tower of their problem and broadcast their intention to return for an arrested landing.

Following NATOPS procedures, the crew attempted to blow down the gear pneumatically, but cockpit indications and a visual check revealed that the right main was up and locked. The other two gear indicated safe. Repeated attempts to unlock the gear through negative G maneuvers proved fruitless, so the crew readied themselves for an extremely dangerous and difficult landing.

On the ground, meanwhile, CWO Saunders and GySgt Spencer, OIC and NCOIC of the Yuma crash and recovery crew, immediately began directing efforts toward foaming the runway along the predicted rollout path of the aircraft. An LSO was spotted abeam the E-28 gear and communications established with Capt Hutchinson.

The crew had burned down to just above NATOPS recommended engagement weight when they entered the landing pattern for several practice passes. Runway foaming was completed and recovery equipment was readied as the *Phantom* rolled into the groove on its first attempt to fly into the wire.

The first attempt resulted in a waveoff, and the aircraft set up for another pass. This time, the F-4 touched down just prior to the wire, and the pilot was able to maintain

when it really counted

By Capt Jim Amos
VMFA-122

wings level until engagement. The hook grabbed the wire, but after approximately 20 feet of aircraft roll, the wire was spit out. The LSO immediately called "Bolter!" and Capt Hutchinson applied full military power in an attempt to get airborne again. Despite the sudden deceleration of the momentary engagement, Capt Hutchinson was able to fly the *Phantom* off just prior to departing the runway. With fuel running low, the crew set up for a third pass.

While the aircraft turned downwind, the crash crew inspected the crossdeck pendant and discovered that two of the seven wire strands had been cut as a result of the abortive engagement. CWO Saunders immediately ordered it removed and replaced with a new cable.

Ordinarily, this evolution would be strictly routine, but the troubled *Phantom* was downwind at this time with less than 500 pounds fuel remaining – fumes in a *Phantom.* Putting their many hours of practice to work, the crew removed the damaged pendant and replaced it with a new one in a total time of 3 minutes! And none too soon.

Time precluded the placement of boots under the cable as partial tension was taken on the pendant only seconds prior to engagement. Capt Hutchinson again touched down right in front of the gear, and this time the hook caught for good. As the *Phantom* rolled out, the right wing dropped to the runway, but the aircraft slid to a stop in the foam with minimum damage.

The outstanding airmanship of the flightcrew plus the exemplary performance of the crash crew under pressure resulted in minimal damage to a valuable aircraft and prevented possible injury or death to an irreplaceable aircrew. This was a classic example of real teamwork in action. Well done to all involved! ◄

Anymouse

Proficiency and Complacency

READING the article, "Private Off-Duty Flying," in the SEP '75 issue prompted me to write about an aircraft accident that will never show up in the Naval Safety Center records.

With 3000 plus hours as a crewmember in military aircraft and 200 plus hours as a private pilot, I allowed myself to become "trapped" into an accident in a *Cessna 172.* All of the Navy and Marine pilots I have flown with were real professionals. This is not to say that all flights I made were perfect. We had our share of aircraft and weather problems, but each problem was handled professionally.

Recently, a friend (the pilot) and I were on a cross-country in an area which we both knew like the back of our hand. We had both received weather briefings for the general area, and it was good except for winds of 10-15 knots and gusting conditions. As we made our approach to the "uncontrolled airport" (no unicom), we noted a slight downwind indication (2-3 knots) on the wind sock. The runway was 3200 feet long and paved. (A real piece of cake, right? Wrong!) We all know those light airplanes can land on a stamp, right? Wrong! Just as he made his flare to land, I noted the wind sock

was straight. By now we had floated one-third of the way down the runway and touched down, but became airborne again. With less than half of the runway remaining, I thought he was going to add power and get us out of Dodge as soon as possible. But he didn't! Then it was too late to say or do anything due to the trees and powerlines at the end of the runway.

We went off the end at 40 mph IAS, and the nose dug in, flipping us over on our back. We both walked away with minor bumps and bruises to body and pride.

How was I trapped? I was lulled into a false sense of security from the many hours spent in the air. My friend, a civilian pilot with 300 hours and still an amateur, pressed on. After receiving his private ticket, he had not received any training except for the required biannual review.

Privatemouse

Goes to show that complacency and/or a lack of proficiency is equivalent to "letting it all hang out" – whether military or civilian.

He Didn't Know the Gun Was Loaded

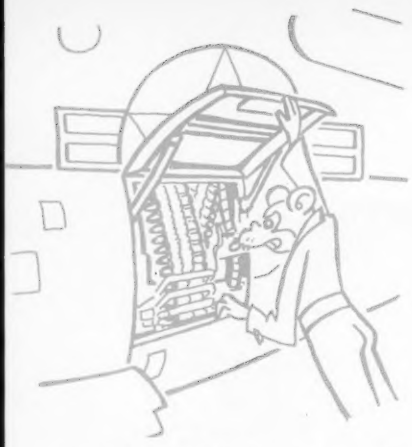
I WAS section leader of a two-plane A-7E flight scheduled for bombing practice. I did not brief strafing since the target did not have any strafing banners. Nevertheless, the flight officer informed me that maintenance had loaded our 20mm guns "just in case" we could find a banner.

We manned up and taxied towards the duty runway. I noticed our arming crew motioning me toward them, and as I stopped in front of them, my M61 gun was armed. I asked if I was loaded and received an "affirmative." I then taxied to the runway and observed my wingman go through the same procedures.

We flew the mission as briefed and did not fire our guns. Approaching the field for landing, we split up for individual approaches. My wingman landed first, and I did several touch-and-go's. Upon rolling out on

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT



my full stop, I saw my wingman in the fuel pits refueling. Upon dearming, I asked the arming crew if my wingie had dearmed. They replied, "Negative." My wingman later reported that he did not know his guns were armed.

I had *assumed* that he knew he had loaded guns and would require dearming. I should have had the flight switch to our squadron frequency and told him that we were carrying ammo. There was no excuse for his failure to realize that he was carrying ammo and was armed.

The lesson: Never *assume* anything – for safety's sake!

Gunmouse

Keep It Climbing

I was making a night takeoff in the P-3. On speed I rotated, got airborne, called for gear up, and commenced a shallow 15-degree left turn to comply with the SID. I also called for and received flaps up.

I took my eyes off the gages and looked out of the window to ensure we weren't turning into someone. It was a pitch black night but VFR, and our departure route was over water. I had no visual horizon, and the aircraft felt as if it were sinking – flaps were still in transit to UP.

The RAWS (radar altimeter warning system) warning activated at about 170 feet, shattering the stillness of the night and causing the PPC (acting as copilot) and me to simultaneously pull back on the yoke. At that time, our *Orion* was descending through 140 feet, and we eventually bottomed out at 100 feet before establishing a rate of climb.

I don't know what our rate of descent was, but I'd guess about 2000 fpm. After the scare, the rest of the departure was normal. It happened because I tried to use a VFR scan without any horizon or outside attitude clues available. This episode left the lasting impression on me that night flying under these conditions is an IFR evolution. I recommend someone else station himself in the cockpit to look outside while both pilots monitor the gages.

Noscanmouse

Concur! **ANY TIME** *you're making a night or instrument takeoff, you are first and foremost concerned with establishing a safe,* **positive rate of climb.** *Your brethren in the single-seat tailhookers after a night catapult will vouch for that. An incident like this makes you a firm believer in the value of a radar altimeter.*

Head Knocker

IN the last few weeks our squadron received a CASS (Command Actuated Sonar System) updated P-3B. The updated aircraft has an antenna directly adjacent to the main hydraulic service center. We have already had several incidents of personnel banging heads against the antenna, and one individual was seriously injured when he suffered a gash on the forehead and was knocked unconscious.

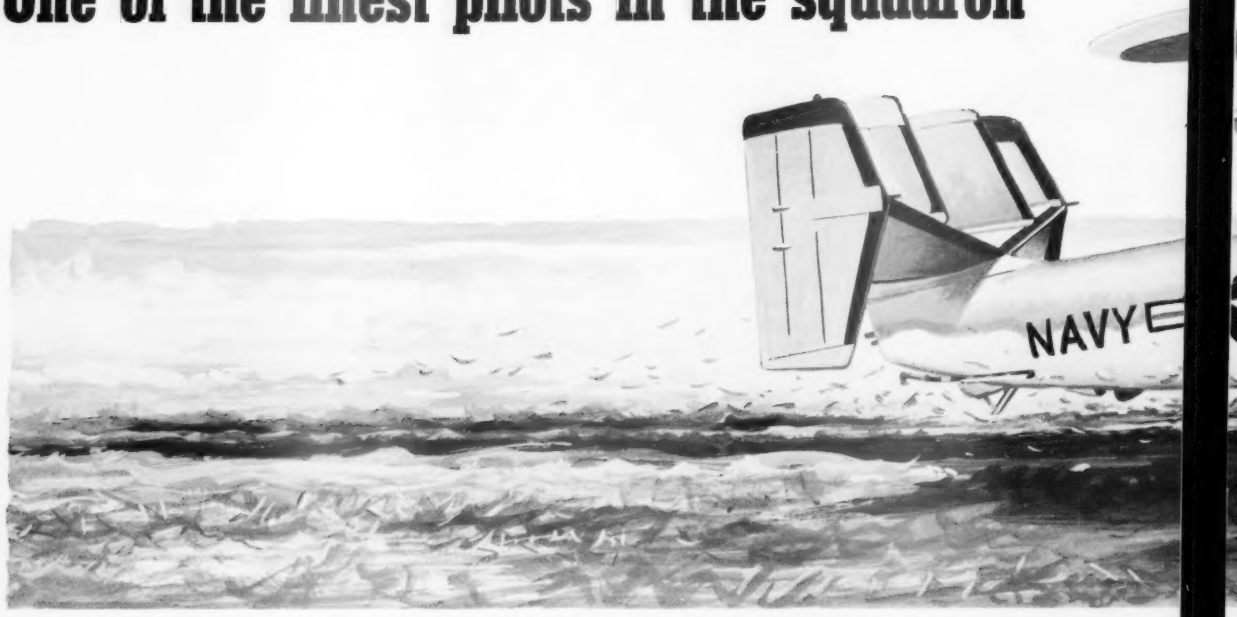
None of us are yet familiar with the new antenna, and to add to the problem, it's painted gray and hard to see. Usually when anyone is under the aircraft, his head is down because of the low overhead.

I suggest that the antennas be painted a bright color to enhance visibility, or that some kind of streamer be attached as a warning.

Stitchesmouse

The problem probably lies in the newness of the CASS antenna, because it isn't the only one sticking down under the P-3 belly. The antenna is supposed to be mounted as received, so painting is not recommended. Perhaps a streamer or cover could be attached. Any other ideas, P-3 operators?

One of the finest pilots in the squadron



HOW many times have you seen the pilot involved in a pilot error accident described as "one of the finest pilots in the squadron"? Quite often. Do you ever wonder how so many pilots involved in pilot error accidents can be the best in the squadron? As just about everyone realizes, more often than not, the pilot involved was *not* one of the better fliers assigned. Why, then, the glowing endorsements? Probably because either the CO is not truly aware who his best pilots are, or else he is trying to protect the pilot and his squadron. In either case, the cause of accident prevention is not served, and in some cases, safety actually suffers as a result.

Fairly recently, an E-2 crashed three-fourths of a mile short of the runway due to fuel starvation. This accident was a classic example of the "finest pilot" syndrome, and the squadron's failure to recognize earlier that this pilot was not "one of the finest" may have contributed to this costly accident.

The accident occurred on the return leg of a cross-country flight from the west coast to the east coast. Enroute stops were scheduled at two civilian fields and a midwest AFB. The PIC (pilot in command) was an experienced aviator with over 4600 total hours, including 1350 in the E-2 aircraft. His copilot, however, was a non-NATOPS qualified RAG student who had not been in a flying billet for 4 years and had flown just 14 hours in the *Hawkeye*.

The first leg of the return flight was to a northeast civilian field where several crewmembers in a passenger status were picked up. At the second stop, midwest civilian, the final passenger was picked up. Due to a reluctance to refuel at civilian fields, the pilot in command decided not to refuel there and pressed on toward midwest AFB at 10,000 feet in intermittent IMC conditions.

During climbout, the port low fuel warning light illuminated. The PIC instructed the pilot at the controls to actuate the tank interconnect to balance the fuel load, and this successfully extinguished the low fuel light. But not for long!

Fifty to 60 miles from midwest AFB, both low fuel warning lights came on, prompting the PIC to declare "minimum fuel" with Center. Despite questioning from the copilot concerning the advisability of diverting at this point, the PIC decided to continue toward midwest AFB and received clearance direct. The crew was vectored to a short final for a PAR pickup. The instrument final was requested due to the restricted visibility caused by rain showers in the area. At around 2 miles from the field, the engines started to run intermittently, and at about 1000 feet AGL, both generator lights illuminated as engine RPM decayed. At this time the PIC took control of the aircraft, announced double-engine failure, and attempted an engine relight. That being unsuccessful, the PIC realized that impact was inevitable and instructed the crew to brace for impact. The aircraft struck the ground slightly right wing down, slightly nose high, approximately three-fourths of a

mile from the end of the runway. The pilot suffered major injury; the copilot, minor; the passengers, none. The aircraft was destroyed.

The aircraft mishap board determined the reason for engine failure was fuel starvation. No fuel was found in the fuel cells in the wreckage. All other components of the fuel system were investigated and found normal with the exception of the fuel quantity gages which were out of calibration for this particular aircraft. The fuel gages read a total of 560 pounds at the time of the crash.

This, however, was not considered a contributory cause, because the E-2 NATOPS states that the fuel gages are inaccurate at the lower end of the scale, and the low fuel light is the primary indicator of low fuel.

Investigation into the pilot in command's role in the accident revealed some disturbing facts. For starters, the copilot, on his own initiative, planned the flight for the westbound trip back to homebase. When the PIC arrived, the copilot informed him that he had planned the ETE for no wind, and there was in fact 35-40 knots of wind on the nose for their route of flight. The PIC reviewed the flight plan but failed to verify the times or compute the ETE with the forecast winds. This obviously affected the actual flight time and subsequently the fuel used.

An additional negative fuel factor was the PIC's decision to fly the enroute portion of the cross-country flaps up at 200 KIAS, a speed well above the long range predicted cruise and also in violation of CNO restrictions placed on E-2/C-2 aircraft not equipped with the new Hamilton-Standard propellers. Had the CNO restrictions been adhered to, the board opined that the estimated 10 percent increase in fuel consumption would have virtually necessitated refueling at midwest civilian. Furthermore, there was no "howgozit" type of fuel log computed/maintained to keep track of fuel use. The crew apparently was relying heavily on fuel gage indications vice computing a fuel flow indication/time history.

The first indication of a questionable fuel reserve occurred during climbout from midwest civilian. This did not phase the PIC, however, as he continued on course. When both low fuel lights illuminated, the *Hawkeye* was 18 minutes from takeoff on a 40-minute flight, and 60 DME from midwest AFB. At this point in the flight, there was still ample opportunity to effect a safe landing by either returning to midwest civilian or landing at any of the several enroute civilian fields. The PIC's decision not to divert was based on several very questionable assumptions.

At the time both low fuel lights came on, the PIC stated to the board that he knew he was doing 240 knots groundspeed. Then for reasons that do not yield to explanation, the PIC slowed the aircraft to 185 KIAS and dropped one-third flaps. He stated later that he did this because in the back of his mind, he remembered (erroneously) this as the max range configuration. In reality, this was the speed/configuration established by the CNO propeller restriction, and this configuration increased

drag, power required, and fuel flow at a point when it was least desirable.

At 10,000 feet, it would have been necessary for the aircraft to indicate approximately 230 knots in order to achieve 240 knots groundspeed with the headwind that existed. The board's opinion was that the PIC failed to recompute the required IAS/TAS for the last leg of the flight at 10,000 feet. The PIC still either assumed himself to be traveling over the ground at 240 knots (discounting the 8000-foot difference in altitude and consequently lower TAS), or he miscalculated his actual groundspeed. Computations by the board indicated that his groundspeed could not have been more than 180 knots, considering distance traveled and time from takeoff at midwest civilian until impact.

A final area of poor judgment was the assignment of the non-NATOPS qualified copilot to this flight. Although not expressly prohibited in the E-2B NATOPS, OPNAVINST 3710.7 series states that a copilot will be NATOPS qualified in model in aircraft carrying passengers, such as this one. Such a qualified pilot was embarked as a passenger, but was not used. Also difficult to comprehend was the PIC's decision to allow the copilot to occupy the left seat, given the copilot's lack of E-2 experience and long absence from flying.

Pilot discrepancies in this mishap seemed completely at odds with the pilot's reputation and experience. Accordingly, the board and assigned flight surgeon looked long and hard for underlying human factors or other explanation that might provide insight into this uncharacteristic behavior. Nothing of significance was uncovered. In the course of their investigation, however, it was determined that this pilot had continued flights in the past with low fuel caution lights and had previously flown cross-country with the flaps up.

The board's conclusion was fairly straightforward: The pilot in command failed to adequately plan the flight, did not properly manage his fuel, and violated several prescribed NATOPS procedures. The culmination of erroneous judgment, NATOPS violations, and the overall flight mismanagement was fuel starvation and ultimate impact with a farmer's field. The copilot was exonerated of responsibility.

Despite the board's conclusions and the pilot's violations uncovered on previous flights, the CO described the PIC as a "keenly competitive, stable, and highly professional pilot. He capably imparted his extensive background in transport type IFR flying/cockpit procedures and multiengine instructor philosophy to all pilots within the squadron." The skipper personally found him "attentive, highly skilled, tactically conversant/productive, and dedicated to operational success." It is difficult to correlate these comments with the facts brought out during the accident investigation and the conclusions of the accident board.

This is perhaps a classic example of the "finest pilot" syndrome. It is significant to note that subsequent endorsers identified the contradictions and made appropriate comments. However, the major point is that, hard as it might be, mishap boards and endorsers to accident reports must be completely objective in evaluating personnel involved in the accident. To do less is to degrade the quality of the accident report and the integrity of the reporting system. This, in turn, hinders the investigation from achieving its most important goal – *to prevent future accidents.*

The board made few recommendations concerning corrective action that should stem from this accident. As the board put it: "NATOPS instructions in existence provide sufficient guidance for conduct of cross-country flights. They all make assumptions of mature judgment, thorough planning, and a certain prudent approach to all aircraft operations." The board did recommend a change to the E-2 NATOPS to clarify the role that copilots, not qualified in type, could fill during a cross-country.

Perhaps the most significant comment and recommendation to come out of this accident was stated by an endorser to the accident report. He said: "The failure of knowledgeable squadron personnel to advise the reporting custodian that the PIC had a tendency to deviate from NATOPS is inexcusable. It is the responsibility of each officer/aircrewman to report deviations from NATOPS/SOP or observed unsafe acts to proper authorities, regardless of friendship, loyalty, or seniority. Had the commanding officer been apprised of the deviations reported in this AAR, corrective action could have been taken." Had this been done, it is not unrealistic to conjecture that two serious injuries might have been avoided and one $10.7 million Navy aircraft could still be in the inventory. ◄

Confidence is that feeling you have before you really understand the problem.

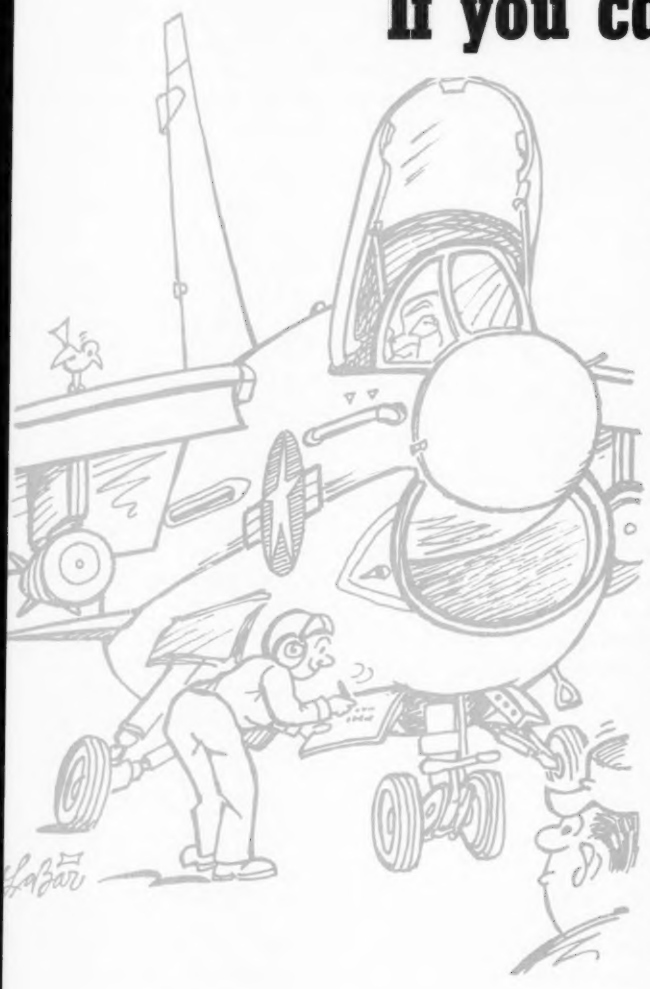
Ace L.

If during this bicentennial year Paul Revere were to repeat his historic ride of 200 years ago, he might very well alter his cries of warning from "The British are coming!" to "The Metrics are coming!" Just as I was about to understand how 16 ounces could equal 1 pound, yet 32 ounces equaled 1 quart, the move to bring in the metric system was well underway. As a matter of fact, here at APPROACH Magazine we have received a directive from the Chief of Naval Material ordering all Navy publications to begin phasing in metric terminology into all writing. Therefore, it's not difficult to imagine how a typical APPROACH "Anymouse" article might appear 10 years from now.

"Fox-Fire One, this is Daisy Two . . . I am holding at 12,000 feet's worth of meters . . ."

If you can't beat 'em...

By LT Richard P. Shipman
Editor



"I carefully marked my gross weight on the nose wheelwell door . . ."

IT was a beautiful day for flying, with only a scattered-to-broken layer of clouds at 1500 meters. I was eagerly anticipating the opportunity to do some live ordnance delivery as scheduled. The brief was routine, and as I walked to my aircraft, I couldn't help but marvel at the expanse of flight deck from which I was operating; at least 1.82 hectares of area and long enough to contain three 91-meter football fields.

Preflight was normal. I carefully marked my gross weight on the nose wheelwell door "13,630 kilograms" because I had a load of Mk-82 2.2 quintal bombs aboard, and I wanted to make sure the cat officer shot me at the right weight.

Engine start was normal, and as the RPM stabilized at idle, I checked my gages: oil pressure steady at the normal kilograms per square centimeter range, EPR set for temperature of 13°C, fuel gage confirming the 5 kiloliters of fuel the plane captain had ensured me were in the aircraft. Poststart checks completed, I taxied to the cat and was shortly booted off the pointy end.

The initial climbout was normal, and since I was scheduled to fly inland airways, I reset the altimeter to 3012 millibars passing 5460 meters. It was then that I felt the engine start to run rough and noticed a fuel flow flux of plus and minus 220 kilograms per hour. Selecting manual fuel didn't help, so I declared an emergency and picked up a bingo heading for the divert field. Air Ops gave me a steer of 270/150 kilometers to NAS Shorebase, so I commenced my bingo profile.

While still over water, I dumped down to max arrested landing weight of 8324 kilograms in anticipation of a short field arrestment at NAS Shorebase. Since the runway was only 2400 meters long and a recent storm had dumped 6 centimeters of water on the runway, I didn't want to take

"I don't see why we have to convert *our* pounds to kilograms . . . the British aren't converting *their* pounds to dollars!"

any chances. I've always gone by the philosophy that 28 grams of prevention was worth 4.5 hectograms of cure.

I commenced my descent from 80 kilometers out and concentrated on setting up an approach position without excessive movement of the throttle. In the process I had to dodge thunderbumpers, avoid civilian traffic in the area, bleed off airspeed, and talk with Approach. I realized that I was getting behind the aircraft.

I arrived at a modified base position and decided to shoot the precautionary approach from that position. At the ninety, I realized that I was fast; the airplane just didn't want to slow. You guessed it. The gear was still up. The realization that I had just about made a gear-up pass hit me like 907 kilograms of bricks. However, I was able to lower the gear in time to execute the midfield arrestment, and then was towed into base ops.

"We have over 150,000 6-inch rules in stock . . . d'ya suppose the medics could use them for tongue depressors?"

Later that evening, wrapped around a .47-liter can of suds, my 75 kilograms of body weight plopped into an overstuffed BOQ chair, I reflected on the incident that had just occurred. My first reaction was that the CO would have beaten me within 2.54 centimeters of my life if I had landed gear-up; therefore, maybe I'd better hush the whole thing up. But then I realized that what had happened to me could happen to others, so I would come clean and hope the continual problems of broken habit pattern, nonstandard pattern, and high cockpit workload would be recognized by others as danger signs so that they might pay additional attention in those situations.

As you can see, conversion to the metric system is going to pose some problems, particularly for us pilots. But, like my old flight instructor used to say, "Nobody said it would be easy." Somebody else also said, "If you can't beat 'em, join 'em," and this seems like the best philosophy for all

"Metric Shmetric . . . you're still 36-24-36 to me, babe!"

Navy personnel to take. Metrics are *coming, no doubt about it, so the sooner you start thinking in terms of these new units, the easier the transition will be. Besides, ultimately, it's a far better system. After all, if God had meant for us to use inches, he would have given us 12 fingers.*

Bravo Zulu

LTJG Mike Anderson
VA-82

AT the end of a tactics hop off the coast of Jacksonville, FL, LTJG Mike Anderson of VA-82 began a final rendezvous on his flight leader. Noting an excessive closure rate, he retarded the throttle of his A-7E and extended the speed brake. When his closure rate failed to slow, LTJG Anderson realized that his engine RPM was 99 percent and not responding to throttle movement.

LTJG Anderson took lead of the section and declared an emergency with Jacksonville Center. He turned his A-7E toward NAS Cecil Field, 59 miles northwest, with a fuel state of 2500 pounds. Returning toward Cecil at 14,000 feet, he tried the manual fuel control, but it had no effect on RPM. Meanwhile, his wingman confirmed a trail of fuel streaming from the tailpipe area.

At 29 miles, LTJG Anderson began a descent with 2000 pounds of fuel remaining. Finding that he could not slow to maximum landing gear extension speed, he pulled the aircraft into a 40-degree climb to get 220 knots, then lowered his gear and flaps. He subsequently blew his gear down and raised the landing gear handle to enable him to use the speed brake while dirty.

The speed brake would not deploy beyond 5 degrees down, however, due to hydraulic problems. The wingman noted excessive hydraulic fluid on the underside of the aircraft. The nonavailability of the speed brake made a difficult situation even harder.

Eleven miles from Cecil Field, LTJG Anderson passed through 2500 feet of altitude at 240 knots with a fuel state of 1400 pounds. Realizing he was too high and fast for a stuck throttle approach, and having essentially no speed brake, he began a shallow 360-degree turn to the right to stay below 240 knots. At this point, fuel loss began to increase rapidly; passing 270 degrees of turn, he read 600 pounds on the gage.

Continuing the orbit to line up with the 12,500-foot Runway 36R, LTJG Anderson descended to 600 feet. At 2 miles and 240 knots, he shut the engine down using the fuel master. Only 150 pounds of fuel remained!

With good electrical power from the EPP and adequate flight control hydraulic pressure, the *Corsair* crossed the runway threshold at 160 knots and 75 feet. The aircraft landed with a flared touchdown at 130 knots, 2000 feet down the runway. Braking was normal, and the malfunctioning bird rolled into the midfield arresting gear at approximately 20 knots.

The postflight inspection revealed a quarter-inch-wide fuel control metering line which had split. This caused the fuel control to go to MRT while fuel streamed from the broken line at over 700 psi.

A knowledge of emergency procedures, professional teamwork with his wingman, and superior airmanship enabled LTJG Anderson to respond quickly and coolly to his multiple emergency, thus saving his aircraft and averting a potential accident. Well done!

A PAINFUL LESSON

By LT D. R. McPherson
VA-87

AN incident recently happened to me which turned out to be a dangerous situation. I tell it to help prevent someone else from doing the same thing.

The morning of the day we were scheduled to fly aboard the carrier to start type training, I awakened with minor indigestion. I popped a couple of antacid pills which provided some relief. When I arrived at the squadron, I still had some slight discomfort but attended to a few last-minute details before suiting up. Those of us who were fly-aboard pilots were the only ones left behind – everyone else was already aboard. I felt obligated to make the flight, and my gut was only slightly irritating.

We briefed and launched at 1300 and arrived overhead about 1445. I held for an hour and became very frustrated about not receiving a CHARLIE. Bingo time was approaching and my *slight indigestion* had increased to a full blown bellyache. It hurt!

We finally received a CHARLIE, and I trapped on the first pass. I notified Ops that I couldn't fly that night and reported to sickbay. Imagine my consternation when I was informed that I had appendicitis. They flew me ashore, cut me open, and now I've fully recovered.

Looking back, I know I put myself in a very dangerous situation. If my appendix had ruptured in flight, I certainly would have lost my A-7 and probably would have killed myself. This whole delta sierra act could have been avoided if I had not had a bad case of can-do-itis.

I've learned my lesson, believe me, and hope others will profit from it. The initial symptom of appendicitis is a stomach pain that won't go away.

Don't aviate even if you're only a little bit sick, or it . . . can-do-you in.

GUT FEELINGS

An Important Pilot Resource

By LCDR D. T. Oliver
VP-8

TODAY'S aircraft are complicated. Pilots are trained and re-trained, taught and re-taught, checked and re-checked. Maintenance procedures are elaborate and requirements are strict. Every action is done in accordance with "something or other," and the seat-of-the-pants era is gone. The "gut feeling" days or the "that doesn't look right" inspections are things of the past. Right? Wrong!

Take this one to heart, you 20th century professionals, and next time your gut says "no," let your mind at least say "maybe not."

While preflighting a P-3 for a maintenance functional checkflight, the pilot said the rudder pedals felt funny. There was a little play in the rudders and a slight binding, but nothing immediately obvious. The copilot also tried the pedals and was aware of something, but it was much like becoming aware of your tongue. A comment was made: "Maybe they're all like this and we just haven't noticed it before."

Rudder deflection was full to both sides, and inspection of another aircraft revealed no differences significant enough to identify a problem. Nevertheless, the quality assurance representative was called, and to make a long story short, the aircraft was downed for "funny feeling" rudder pedals.

Initial investigation revealed that the rudder cable quadrant appeared to travel beyond the cable guard by approximately one-eighth of an inch, and the aircraft was moved into the hangar for adjustment of the flight controls. When the dishpan was removed in the nose wheelwell to "shoot" the rig pin, the micarta stop on the pilot's right rudder pedal was found completely broken off.

The primary cables at the boost package sector were then disconnected to center the rig pin alignment hole which was off approximately one-fourth of an inch. When the cables were slackened, the section normally routed under the pulley at the aft pressure bulkhead was exposed. Inspection revealed broken strands approximately one-quarter of the way through the rudder cable for a length of 5 inches.

No great imagination is required to visualize the grave potential of this situation had it gone unchecked. Naturally, other aircraft were checked, maintenance and QA procedures were reviewed, and reporting was accomplished; but the lesson here is one for the pilot.

Our aircraft are expensive and lives are precious. Naval aviation demands *all* of our resources, and one of those is that "gut feeling." Don't ignore it. In this case, it may have averted a catastrophe. Seat-of-the-pants is no longer the only way to fly, but it is part of an arsenal of resources for the professional aviator and should not be packed away with the leather hats and silk scarves of yesteryear.

Helicopter SVFR (Special VFR)

By Capt William A. Battey, USMCR

HELICOPTER pilots spend more time than they care to admit in MVFR (marginal VFR) weather despite IFR-equipped aircraft and instrument ratings. The helo's unique flight envelope and mission versatility combine to virtually ordain its use in all but the most restrictive weather. Quite often the mission precludes operating under IMC. Instrument approaches to unimproved or tactical landing zones are not always available. Literally thousands of airports without instrument approaches are unavailable for use when the weather falls below ceiling or visibility criteria. Often, however, these same airports can be utilized by helicopters when the weather is below approach minima.

There has been little discussion of recommended flight procedures for operating under marginal weather conditions, perhaps because the prevailing attitude is that you don't belong there in the first place, which begs the question entirely. An experienced helo pilot *should* be able to fly safely under low ceilings/poor visibility conditions *if necessary.*

Four factors should be considered: terrain, weather, pilot technique, and effective supervision.

Terrain. Any discussion of MVFR flying must deal with terrain, and any discussion of terrain must emphasize, above all else, familiarity with the local area. Pilots should

familiarize themselves with the local area from the day they check in. Terrain familiarization should be a positive, systematic effort, no less important than familiarization with the aircraft itself. Such effort should include, though not be limited to, the following:

- Authorized SVFR entry and departure routes for Homeplate should be studied.
- Highway identification is probably the MVFR helicopter pilot's best friend, day or night. Route numbers should be noted on VFR sectionals until memorized. Conspicuous buildings, lighted signs, rivers, bridges, railroad tracks, or pipeline right-of-ways are all useful for orienting oneself throughout the local area. Develop routes across the local area using terrain and manmade features, and fly them in good weather without reference to navaids. Fly these routes slowly as if in reduced visibility to establish the elapsed time between checkpoints. This isn't to suggest that navaids be ignored when flying MVFR, but they shouldn't be relied on exclusively, either.
- Ridges, rivers, and bays are most often the weather trouble spots encountered. Ridges are obscured by low ceilings, and rivers/bays in general are the first places where low visibility is encountered.
- Obstructions, powerlines, and phone wires should be pinpointed exactly.
- Airports (controlled or uncontrolled), together with their instrument approach keys, should be avoided unless you're under positive radar control. Under current FARs and ATC procedures, there is nothing to prevent an unmonitored mixture of IFR and SVFR traffic at uncontrolled airports.

Weather. Among all factors that impinge upon the MVFR helicopter pilot, surely weather is the primary one. Yet, often the only elements of a weather briefing considered are enroute and destination ceiling and visibility. A proper

weather briefing for anticipated MVFR flying should include a look at the following information:

- The Surface Analysis chart to determine pressure system centers, movements, and frontal action.
- Military Weather Warnings, SIGMETS, and AIRMETS which may stop a flight before it starts.
- The Weather Depiction chart to relate ceilings and visibility conditions to major weather features on the Surface Analysis chart.
- The Radar Summary chart to locate any thunderstorm activity and their intensities.
- Area forecasts to determine enroute weather for longer flights. United States Weather Bureau criteria for VFR, MVFR, and IFR are worth noting. VFR is ceiling above 3000, visibility greater than 5 miles. MVFR is ceiling 1000 to 3000 and visibility 3-5 miles. IFR is ceiling less than 1000 and visibility less than 3 miles. So-called IMC of 800 and 2 could be quite acceptable weather for MVFR helicopter flights. Area forecasts contain a synopsis of regional weather and a forecast of significant cloud and visibility conditions. Remember, ceilings are AGL, and tops of cloud layers are MSL.
- Terminal forecasts are issued every 12 hours with amendments at 6-hour intervals, and cover a 24-hour period. Like the area forecasts, they contain an 18-hour forecast of specific ceiling and visibility data and an outlook for the following 6 hours.
- Hourly sequence reports are the most up-to-date source of raw weather data. Get two or even three prior sequences to detect improving or deteriorating conditions, and ask for "Special Observations," if available, during rapidly changing weather situations. Finally, don't overlook temperature/dew point spreads.
- Weather radar, which depicts current precipitation, is quite useful for MVFR route planning, but it can't paint fog. Find the weather radar in your area. It may be located at a military base, FSS, or ARTCC. If you can't look at it, at least a telephone report can be helpful.

If circumstances preclude a face-to-face briefing, the pilot contemplating a MVFR flight should receive a telephone briefing which includes the area forecast, terminal forecast, and hourly sequence reports for enroute points and destination. If your destination is distant from a weather reporting station, don't hesitate to call a nearer public or private airport to get a more accurate report of existing weather.

Weather briefers, both military and FAA, are human, and often personality factors play more than an incidental role in the presentation and interpretation of weather data. Too often the pilot is in a hurry. Weather briefers tend to resent this since they feel an obligation to give a comprehensive briefing. Some weather briefers are less familiar with helicopter capabilities in marginal weather and tend to discourage such flights. The point is that professional pilots and weather forecasters are involved in an exchange of information, and psychological factors should be minimized. Pilots should leave weather forecasting to the experts, and weather briefers should give pilots all the information available for their flights.

Finally, utilize all available weather data. Don't hesitate to request National Weather Service forecasts from a military weather forecaster, or military weather forecasts from an FAA specialist. The same applies to hourly sequences. There may be a significant difference between an Andrews AFB forecast and a Washington National forecast for the same period. Find out why. Maybe one is more recent and reflects updated information. As a group, both military and FAA/NWS forecasters enjoy ever-increasing accuracy and reliability but why, in marginal weather, rely on one opinion?

Pilot Techniques. Any discussion of flying techniques for MVFR helicopter pilots must tread a thin line between the relevant and the obvious. The following suggestions, solicited from experienced civilian and military helo pilots, verge on the obvious. They are nonetheless relevant.

Some weather briefers are less familiar with helicopter capabilities in marginal weather and tend to discourage MVFR flights.

• Fly the aircraft first. Keep your head out of the cockpit. Let the copilot and crew chief monitor the instruments.

• Fly slowly. Don't overfly your visibility. Emphasis on height/velocity considerations is misplaced in MVFR flight. The chance of inadvertent entry into IMC or collision with obstacles is far greater than a sudden complete loss of power, especially in this generation of twin-turbine-powered helicopters.

• Watch for powerline towers and fly over the towers, not between them. Static lines can be 50 feet higher than the highest series of powerlines and quite invisible.

• Don't undertake a MVFR flight in an aircraft that couldn't fly safely under actual instrument conditions.

• Permit no restrictions to cockpit visibility. Dirty windshields, maps stuffed behind the panel, inoperative washers/wipers and defrosters/blowers can assume critical importance in MVFR flight.

• Adjust cockpit instrument lighting at night as low as possible.

• Practice daylight approaches to minimally-lighted, unimproved landing zones you use at night, and note obstacle clearance altitude and desirable approach and departure paths.

• Consider the legal status of your flight in relation to other aircraft operating under instrument flight rules. Generally, unless an emergency or low fuel state is declared, IFR inbound aircraft are given priority over SVFR arrivals. Anticipate this and expect delays, especially at non-radar airports.

• Use radar service whenever available, but beware of its limitations. The newer terminal radar is effective in traffic identification and separation but less so in painting precipitation. Controllers are rightfully reluctant to tune their scopes for weather and thereby risk losing primary and secondary targets.

• Maintain a current canned IFR flight plan to file in case continued MVFR flight isn't possible.

Effective Supervision. Squadron COs, what is your attitude toward marginal weather flying? Do you have a systematic, positively oriented program to upgrade your pilots' skills, or do you rely on one or two "super" HACs to get the job done when the weather isn't cooperating? Here are some ways to develop a confident, can-do attitude among your pilots while still stressing safety as a primary consideration:

• Have the operations or training officer develop a ground training syllabus covering terrain, weather, and pilot techniques as they relate to MVFR flights in your operating area.

• Have the navigation officer make up a map of the operating area depicting the terrain features relevant to SVFR operations in your local area, and post this map in the readyroom.

• Insist that the maintenance officer keep all systems up all the time. (That means windshield washers and wipers, defrosters, and blowers as well as communications/navigation equipment.)

• Instill in all pilots a positive attitude toward MVFR flights and the knowledge of terrain, weather, and flight techniques required. Give them properly equipped and maintained aircraft and watch them perform. The name of the game is to fly safely in good, bad, and marginal weather. ◄

CATASTROPHE AVOIDED

STEAMING in formation, underway replenishment, and vertical replenishment are all evolutions between ships which are fraught with danger. Combine all three at once, and the stage is set for a possible catastrophe.

It was suppertime, 1805 local, when an oiler and a carrier were steaming side by side, doing their thing. The weather was good and the seas were calm. From the activity topside, it is doubtful that very many were actually on the mess decks.

The carrier was alongside to port, fueling, and the helicopter crew was busy with VERTREP operations. No one realized that within seconds a situation would arise that would jeopardize both ships and endanger the lives of everyone.

The helicopter had just hooked up to a VERTREP load and the pilot put tension on the pendant. Suddenly, a ship refueling hose in use at an aft station burst, and the rotor wash contributed in the creation of instant IFR conditions of atomized mist of Navy distillate. The starboard side of the helicopter was covered with fuel, and the pilot lost all visibility through his windshield and out of his right side.

The HAC, in the left seat, hollered, "I have it," and climbed out vertically until clear of the cloud of mist.

The potentially catastrophic situation developed instantaneously and was totally unexpected. The HAC's recognition of the danger and his reaction to climb out of the mist was the only solution. No one will ever know why the atomized cloud of distillate did not ignite. It is not difficult to imagine how easily an explosion could have occurred.

This incident also reemphasizes the necessity for the hookup man to rapidly clear the area once the hookup of the load is completed. The weight of the load in this incident and prevailing atmospheric conditions permitted the HAC to make a vertical takeoff. However, if the combination of the two had been different, the helo crew would have had to dump the load to get out of there.

Strict enforcement of SOP and crew alertness paid healthy dividends. Continued vigilance is the only solution to sudden equipment failures and emergencies of any kind which can result in catastrophic consequences. ◄

WAVING: *You can't take it personal!*

FPO, New York – "The 'In-Close' Waveoff" by LCDR George Webb in the FEB '76 issue of APPROACH raised some interesting and controversial points concerning a subject that is currently receiving increased attention due to an unfortunate rash of accidents after a long span of mishap-free carrier landing operations. Assessment of fault in these instances was no doubt difficult, and sometimes justly – sometimes unjustly – attributed to LSO technique. Like other humans, LSOs err, although I would argue that the "saves" outnumber the "goofs" many times over.

As an LSO, I can testify that the in-close waveoff provides the LSO with a more chilling "leemer" than any other landing circumstance. Only two situations necessitate an in-close waveoff aboard ship: a foul deck or pilot technique. Of the two, an in-close waveoff due to a foul deck is clearly LSO error, except in those occasional circumstances when the deck goes from clear to foul at the last moment – in which case the LSO is obliged to wave off the aircraft, no matter how close it is to touchdown. Concerning pilot technique, unpredictable aircraft movement in-close may necessitate a waveoff to avoid a ramp strike or hard landing. In my experience, sudden foul decks and last second aircraft deviations severe enough to require waveoff are rare. Far more frequent is the situation in which the LSO presses a foul deck, "betting on the come," or tries to salvage a poor approach, resulting in an in-close waveoff. For this, the LSO must assume full responsibility.

There is simply no excuse for pressing a foul deck. Each aircraft has a "safe" waveoff point, and LSOs are indoctrinated early on what that point is. To accept an aircraft past that point with the deck still foul is folly, ship or CAG policy notwithstanding. Considering that we are operating a peacetime Navy in an era of scarce resources, a prudent LSO, I should think, would give himself even a little extra margin of safety when it comes to foul deck waveoffs.

In the same vein, just as most foul deck waveoffs are no surprise, most technique waveoffs manifest themselves early in the approach. In the vast majority of the technique waveoffs I have administered or observed, my "gut" has told me early that a waveoff was necessary or impending. Waveoffs rendered necessary by in-close deviations from otherwise satisfactory passes are rare – very rare. Too many poor approaches are continued, salvaged so to speak, due to external pressures, or simply LSO pride. I will freely confess that I have too often accepted approaches that I later wished I had refused. Thankfully, good fortune has thus far reigned, and my mistakes have not been translated into accidents.

To the point of LCDR Webb's article then, in-close waveoffs should be rare; if not, there is something wrong on the platform. Concerning waveoff technique, there is only one: full power and maintain the proper angle-of-attack. The whole point of a waveoff is that for some reason, it is not safe to land. One waveoff technique is sufficient to optimally achieve this, whether it be at the start or at the ramp. More specifically, in most cases the pilot has only angle-of-attack to use in determining optimum landing attitude, particularly at night. In situations in which pilots are failing to respond properly to visual and verbal stimuli from the lens and LSO, it is doubtful that he would have the awareness to choose between a variety of waveoff techniques under the pressure of an in-close waveoff. One technique is best: full power and maintain the proper angle-of-attack.

Unquestionably, the LSO receives a mountain of grief for his efforts. There are countless times that the air boss calls down over the 19MC, "Get 'em aboard, Paddles." Admirals and captains complain about steaming too long into the wind. Landing conditions are abominable: obscured centerlines and flight decks, missing wires, minimum winds, low pilot proficiency, and so on. And only the failures receive publicity and attention – never the successes. Yet such is the nature of the business, and the LSO cannot mitigate his responsibilities by crying about the conditions. Obviously, I have become very cautious in my approach to the business. To me, saving a minute or two of recovery time by pressing foul decks or attempting to salvage everything is not worth the hazard of putting mainmounts through the wings due to an in-close waveoff.

As aircraft become more costly and as operating constraints become more acute, demands on the LSO will increase. For those who will remain in the business (I am being "forced out" of the Navy), I would like to offer my philosophy: Naval aviators today are the best that have ever flown off the ship, and even the poorest wants and tries to fly a perfect pass every time. That it is not possible is the reason you are on the platform, to advise and assist. You must know the limitations of the aircraft and of yourself. And above all, you can't take it personal. Good luck!

LT Mike Jordan
Former CVW-7 LSO

Letters

P-3 Tail Boom Workstand

FPO, San Francisco – The tail boom may well be the most dangerous place to work on a P-3. Why can't we have a tail boom workstand similar to the engine workstand with felt guards for rudder and elevators?

Rudder and elevator movements have scared a week's growth out of every mech and tech who has ever worked on the tail. Wouldn't it be nice not to see anyone have to balance himself on top of a safety rail to open the aft radome? Wouldn't it be great not to be whacked on the backside when the wind blows a rudder plate against you?

I have seen the tail workdock at Lockheed. It could be easily modified by adding wheels. Then two men could move it for maintenance use or it could be pulled by a tractor.

AX1 James M. Byrd
VP-4

● The P-3 empennage has always been a tough place to work, but look for better things pretty quickly. A *Windshield Mad Boom Workstand,* W-15 (Lockheed), 673390-101 (FSN 1RN 2920-00-399-0047 BB), has been developed. You'll find them assigned to all P-3 squadrons, and eventually one workstand will be allocated for each deployment base.

Don't Mod the Flight Suit

El Centro, CA – In regard to Chief Jordan's suggestion about reflective tape on flight suits, appearing in the APR '76 letters section ("Increase *Nomex* Visibility"), I feel the Chief's heart was in the right place, but I can see several difficulties with his approach and the editorial response. First, someone in authority should decide if visibility is desired. Even though we are at peace, we should be combat ready. Second, is the reflective tape as fire-retardant as *Nomex?* And third, we should knock off local mods as much as possible (i.e., knife holders), as no one really exercises configuration management that way. If the tape is OK and someone in authority decides it is a warranted change, then let's come out with a formal directive. Otherwise, let's go by the book.

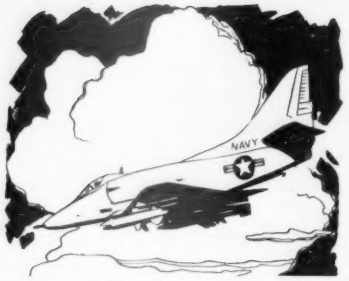
Matt Ternes

● We agree completely. Our original response should not have implied encouragement for a local modification, even if the idea was basically sound.

Promote Responsibility

NAS Atlanta, GA – In reply to CAPT Pasquale's letter in the JUN '76 issue of APPROACH, I feel compelled to make the following comments. Granted, the inclusion of pilots' names may not be germane in most instances, but I fail to see why this should deter the individual concerned from disclosing those incidents which might otherwise remain unknown. Perhaps I am an idealist, but my overriding concern for the safety of other personnel and aircraft forces me to be both open and aboveboard in reporting situations which might preclude their further occurrence. Take the name out or leave it in, but of supreme importance, promote a sense of responsibility in all hands which will tend to cause us to forget self for the moment and be more concerned for others.

AMCS J. C. Arnold
VA-205 QACPO



Cockpit Blivet?

NAS Anywhere – Here's a safety of flight item. Years ago there were a lot of *Scooters* around, and many people know what a cramped cockpit the *Skyhawk* has. Nowadays, there aren't so many people lucky enough to be driving *Scooters,* but those few pilots are still aware of the tight cockpit. F-4s, A-6s, and A-7s have cockpits large enough to permit pilots to wear cumbersome flight and survival gear and get by. Not so in the A-4! I doubt that those who make us wear those survival vests have ever flown an A-4 and especially not in the goo and on someone's wing, or at night in the bombing pattern, or during ACM, or with a poopy suit on.

The vest as it stands now makes an already cramped cockpit totally unacceptable. It obstructs vision of instrument panels, constricts body movement, and lastly, restricts the last 2 inches of aft stick travel. Yesterday, I flew for the first time with the AN/PRC-90, which is a new, larger radio. This is the last straw for me and is what prompted this letter. The new radio makes it impossible to see my side panel instruments. Enough is enough. All these safety items are going to end up making me smoke in.

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

A reasonable alternate, in the form of an integrated torso harness, was submitted to NAVAIRSYSCOM 3 years ago. What's the status?

Name Withheld

● What you say is true. A-4 cockpits are cramped. Problems associated with the SV-2 survival vest, ventilated wet suit, and anti-G suit are well known to the Safety Center, NAVAIRSYSCOM, and NADC. Currently, two avenues are being explored to alleviate some of the problems:

(1) NAVAIRSYSCOM and NAVAIRDEVCEN are working on the problem of incompatibility of the ventilated wet suit/anti-G suit. Also, the Ventile antiexposure suit, which offers improved mobility has been recommended by COMNAVAIRLANT for fleet use.

(2) Ten survival vests modified to hold fewer items of survival/location aids and redesigned to give a more body-hugging profile are undergoing preliminary evaluation. If successful, a complete operational evaluation will be conducted with a view to full acceptance.

Out With It

NAS Norfolk – There has been much discussion in the helo community about the merits of carrying liferafts. Anyone in any community would agree that they are good ideas for overwater flights. Our friends in the fixed-wing community who usually exit an aircraft prior to water entry, or on occasion while they are in the water, at least have a relatively clear path of escape. Under their circumstances, there is little objection to having a liferaft strapped on prior to making that hasty retreat. However, in the helo community, all emergency egress situations that I know of have occurred after impact. And in water, that exit usually requires disengagement from a jumble of flight controls, opening closed doors (on occasion), climbing through windows, and dodging anything else that is floating/lying around in a rather confined crew/passenger cabin. The thought of strapping on another piece of gear that will only increase the chances of having it snag on a 10-cent knob or a piece of broken airframe just scares me to death. So, as required by NATOPS, on all overwater flights, we carry rafts . . . in the back . . . to go down with the aircraft . . . after we have successfully escaped a watery grave. After all, we know that whatever doesn't go out with us immediately, 10 times out of 10, won't go out at all.

I propose that on future helo designs, a compartment be incorporated into the airframe with an external hatch which will release a suitably sized raft or rafts for the helo (inflate on activation) at a predetermined depth, preferably 6 inches.

Ships have been using these hydrostatically releasable rafts for some time. Now, how about for our helos? Any takers? Any thoughts? Anyone care?

LTJG R. F. Rygg
HSL-32

Re "Civilian Flying for Naval Aviators"

Eglin AFB, FL – Subject article appeared in the APR '76 issue of APPROACH by LTJG Hubbard. It was excellent in almost all respects. I would, however, suggest that the author and readers scrutinize the appropriate FARs since 91.83(b), 91.116(b) and (d), and 97 govern IFR approach criteria.

For example, if operating a civil aircraft into or out of a military airport, Part 91.116(d) requires compliance with takeoff and landing minima prescribed by the military authority having jurisdiction over that airport. IFR approach criteria for civil airports are also covered by one or more of the previously mentioned FARs. Instrument flight takeoff minima for civil airports do apply if the pilot is operating under Parts 121, 123, 129, or 135.

We in the Safety Office here at Eglin find a great deal of useful information in your fine magazine, and we enjoy the well-written articles such as the one by LTJG Hubbard. Keep up the good work so that we can all continue to improve our respective flight safety records.

Col R. P. Schumann, USAF
Chief of Safety

● Thanks, Colonel, for your kind remarks. In reply to your letter, we'll try not to muddy the waters. Since you were speaking to IFR approach criteria, then 91.116(a) *requires* the use of a Part 97 approach. Article 91.116(b), as you pointed out, sets forth the requirement that Part 97 minima be observed. You were also absolutely right when you indicated 91.116(d) covers civil operations at military airports. Now, we might be nitpickin' a little by not emphasizing that military operators of civil aircraft research Parts 121, 123, 129, and 135, but since they pertain to commercial operators, the type of flying discussed by LTJG Hubbard would not be likely to fall under any of these.

In addition to the basic VFR weather criteria and rules of the road, there are three very important rules for the VFR pilot to remember: 91.71 pertaining to acrobatic flight, 91.79 pertaining to minimum safe altitudes (and perhaps of significant importance to the pilot used to operating in a higher strata), and 91.109 pertaining to VFR cruising altitudes. A critical point in this section is the fact that NO procedural altitude separation is built in at 3000 feet AGL and below.

Computer With Ears

Orlando, FL – Another alternative to paint scraping exists for the air traffic controller who desires to maintain proficiency ("Control Aircraft or Scrape Paint?" FEB '76). It is technically feasible to provide proficiency training to controllers during the yard period without the use of live aircraft.

The state of the art in simulator technology can produce realistic air traffic situations. This is done using a computer with "ears." Computer speech recognition capability integrated with individualized, self-paced instructional technology for the PAR approach has been developed in a laboratory tool at the Human Factors Laboratory, Naval Training Equipment Center. It has been demonstrated to be technically feasible to produce a proficiency trainer for the PAR controller. Regular exercise on such a device during low activity times could keep the CATCC team up to speed.

I can be reached by telephone at (305) 646-5130 (Autovon 791-5130). My mailing address is:

Dr. Robert Breaux
Human Factors Laboratory (Code N-215)
Naval Training Equipment Center
Orlando, FL 32813

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A Naval Safety Center Publication

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IFARS: The Program Needs Help

RADM Wm. H. Ellis

The IFARS (Individual Flight Activity Reporting System) is becoming increasingly important in accident prevention programs. In addition to the normal recordkeeping functions, the system provides up-to-date exposure data for study and research, flight safety analyses, flight program evaluation, and similar safety-related activities. From the individual aircrewman's point of view, the most important fact is that IFARS is the sole data base in determining whether annual flight time requirements have been met. Unfortunately, the IFARS program has been severely hampered by the excessive error rate and loss of data occurring within the system. The magnitude of the problem is such that 10,000 individual flight records are rejected each month and returned to Navy squadrons for correction.

Responsibility for these errors must be borne both by the IFAR system and the submitting squadrons. Originally, the system was designed to provide flight exposure data primarily for statistical use. Absolute accuracy was not required for this purpose. However, today the requirements on the IFAR system and the uses of IFARS have increased to a point where audit accuracy is expected but is not available. This can be attributed partly to the original system design and partly to inadequate field support.

This error rate must be reduced to make the IFAR system more effective and to accommodate any new functions that may be assigned to IFARS. This year, for example, IFARS will perform two new functions:

- As directed by OPNAVINST 3710.7H, flight time in certain flight simulators will be reported into the IFARS. Data processing activities will reprogram IFARS in accordance with OPNAVINST 3760.10B (new) to accept and process simulator documents. When directed, all authorized simulator IFARS carbons will be submitted to the local data processing activity.
- The IFARS will be used to extract flight hours, landings, and other exposure data as a replacement for the squadron manual fact sheet submission currently used in ranking nominees for various CNO aviation safety awards. Those commands having complete data on file will obviously receive the full benefit of the flight exposure criteria.

What, then, can be done to make the IFARS program truly viable? From the system's standpoint, the following action is being recommended:

- Use a single-computer format to provide flight data elements required by both IFARS and 3M. This means that one man vice two would collect, submit, and proof squadron flight data.
- Redesign of the daily proof sheet to make it more useful through annotation of errors detected at the local data processing activity. Thus, errors would be more easily detected and corrected by squadron personnel before data tapes are sent to NAVSAFECEN.
- Monthly computer printed aircrew flight log produced by local data processing would be maintained in the NATOPS qualification jacket rather than a logbook. This means that aircrews would have an IFARS computer printout for a permanent flight time record and would also review and correct any errors detected on a monthly basis. The annual IFARS feedback report would then be a complete record of the individual's flight activity.

Although these improvements should do much to simplify procedures for the squadrons, the fact remains that they are still in the future, and we have a requirement for accurate and complete IFARS data today. Therefore, it is incumbent on aviation commanders to exert command attention in the following areas that have been identified as sources of error from the squadron level:

- Improper or incomplete logging of flight information on yellow sheets by the aircrew.
- Squadron personnel not detecting and correcting errors or omissions on the IFAR-1 (daily proof sheet) received from their local data processing activity.
- Squadron personnel not properly correcting errors identified on the NAVSAFECEN monthly IFARS error listing.
- Failure of appropriate squadron personnel to compare the summary of unit aircraft flight hours on the NAVSAFECEN monthly IFARS error listing with other squadron records, such as monthly 3M flight data.

IFARS is an important program and becoming more important all the time. Improvements to the system are forthcoming, but in the meantime, let's all work together to make the present system as accurate as we possibly can. By so doing it will benefit the aircrew, the squadron, and the Navy's data bank.

Wm. H. Ellis

"Hello out there.
Having a nice day?
Won't you step over and
join me for dinner?
I'm very easy to please and will eat
just about anything.
Including you."

Submitted by LT R. A. Clark, VAQ-131